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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/351,147 07/12/99 CHESTER

A 10164-1

023455 IM62/0606  
EXXONMOBIL CHEMICAL COMPANY  
P O BOX 2149  
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EXAMINER

GRIFFIN, W

ART UNIT

PAPER NUMBER

1764

DATE MAILED:

06/06/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/351,147

Applicant(s)

Chester et al.

Examiner

Walter D. Griffin

Group Art Unit

1764



☒ Responsive to communication(s) filed on Jul 12, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-10 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Oath/Declaration***

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of each inventor.

The citizenship of inventor Ke Liu is not identified. The identification of the inventor as a permanent resident of the USA does not identify the citizenship.

### ***Specification***

The disclosure is objected to because of the following informalities: In assembling the file, holes punched in specification obscure some of the words in the first line on pages 2, 5, 8, 11, 12, 13, 17, and 18.

Appropriate correction is required.

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***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite because the basis for the ratio (i.e., molar, weight, etc.) is not identified.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 2, 5, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Ladwig et al. (6,069,287).

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The Ladwig reference discloses a process for selectively producing light olefins (i.e., C<sub>2</sub>-C<sub>4</sub>) by contacting a naphtha hydrocarbon feed with a catalyst at conversion conditions. The naphtha has a boiling range from about 65°F to about 430°F. This range overlaps the range claimed and therefore, the naphtha of Ladwig must be a C<sub>4</sub>+ naphtha as claimed. The catalyst may comprise a medium pore zeolite such as ZSM-5 and ZSM-11. The catalyst also comprises an inorganic matrix that is preferably not catalytically active. The disclosure of a non-catalytically active matrix would disclose the limitations of claim 5. Phosphorus may also be included in the catalyst. It is also preferred that steam be concurrently introduced with the naphtha into the reactor. The steam may comprise up to about 50 wt% of the naphtha. The teaching that aromatics in the heavy naphtha product may be recycled indicates that aromatics are produced in the process. (See col. 2, line 46 through col. 5, line 9 and the examples.)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ladwig et al. (6,069,287).

The Ladwig reference discloses a process for selectively producing light olefins (i.e., C<sub>2</sub>-C<sub>4</sub>) by contacting a naphtha

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hydrocarbon feed with a catalyst at conversion conditions. The naphtha has a boiling range from about 65°F to about 430°F. This range overlaps the range claimed and therefore, the naphtha of Ladwig must be a C<sub>4</sub>+ naphtha as claimed. The catalyst may comprise a medium pore zeolite with a silica to alumina molar ratio of less than 75 in amounts ranging from 10 to 50 wt% of the total catalyst composition. Such zeolites include ZSM-5 and ZSM-11. The catalyst also comprises an inorganic matrix that is preferably not catalytically active. Phosphorus may also be included in the catalyst. Process conditions include temperatures from about 500° to about 650°C, a hydrocarbon partial pressure from about 10 to 40 psia and a catalyst to naphtha weight ratio from about 3 to 12. It is also preferred that steam be concurrently introduced with the naphtha into the reactor. The steam may comprise up to about 50 wt% of the naphtha. It is preferred that the weight ratio of propylene to ethylene be greater than about 4. However, the examples disclose propylene to ethylene weight ratios ranging from 1.9 to 5.8%. The teaching that aromatics in the heavy naphtha product may be recycled indicates that aromatics are produced in the process. (See col. 2, line 46 through col. 5, line 9 and the examples.)

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The Ladwig reference does not disclose the claimed amount of phosphorus, does not disclose the claimed WHSV, and does not disclose the product compositions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by utilizing phosphorus in the amounts claimed because one would utilize a known effective catalytic component in amounts that would result in the most effective process.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by utilizing the claimed WHSV because Ladwig discloses that changing process conditions affects the yield and purity of the products. Therefore, one having ordinary skill in the art would adjust the conditions including WHSV in order to obtain desired products.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ladwig by producing products having the claimed compositions because Ladwig discloses that changing process conditions affects the yield and purity of the products. Therefore, one having ordinary skill in the art would adjust the conditions to obtain desired products in the desired amounts.



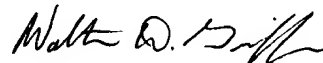
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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Griffin whose telephone number is (703) 305-3774. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Marian Knode can be reached at (703) 308-4311. The fax phone number for this Group is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.



WALTER D. GRIFFIN  
PRIMARY EXAMINER  
ART UNIT 1764

WG  
May 31, 2000